UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/748,512	12/26/2000	Jean-Pierre Giacalone	TI-31754	4129

23494 7590 12/19/2003		EXAMINER
TEXAS INSTRUMENTS INCORPORATED		CHAUHAN, ULKA J
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DALLAS, TX 75265	ART UNIT	PAPER NUMBER
	2676	

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2003*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
since a specific reference was included in the first sentence of the specification or in an Application Data Sheet.
37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific
reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .	6) ☐ Other: ___ .

DETAILED ACTION

1.   Claims 1-14 are pending.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   **Claims 1-3, 5-11, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated**

by U.S. Patent No. 5,920,353 to Diaz et al.

4.   As per claims 1, 2, 3, 5, and 6, Diaz teaches an architecture of a multi-standard decoder

200 which can decode input that is encoded in any of a number of different formats and that is

used for video telephony [col. 5 line 66-col. 6 line 15, col. 6 lines 25-28, and Fig. 2]. Diaz

discloses that the decoder 200 is composed of functional blocks or modules connected to

memory 160 ("*a random access memory*") and a processor 75 ("*a processor ... for executing*

software instructions for processing images and video") to allow the processor 75 to control the

access of the functional blocks [col. 12 lines 40-47]. The decoder 200 modules include block

decoder module 50 containing IDCT module 46, motion compensation engine 90 containing

half-pel filter 78 for performing half-pixel interpolation, an encoder module 88 containing DCT

circuit 112 ("*a transform coding hardware accelerator*") and motion estimation engine 86 ("*a*

motion estimation hardware accelerator") [Figs. 2 and 3]. Diaz discloses that the buffer 126 is

connected to the motion estimation engine 86 and is part of the main memory where the

macroblocks in the I and P frames are stored in the buffer 126 and retrieved when they are the

prediction macroblocks needed for the comparison (*"one or more hardware accelerators retrieve data from the random access memory"*) [c. 9 ll. 13-19]. Diaz also discloses that the processor 75 allows some of the functional blocks of the decoder 200' to be performed in software in the processor 75 to either completely replace some or part of some of the functional blocks, or to allow the function to be performed in either hardware or software [c. 13 ll. 38-42 and c. 8 ll. 5-15]. And Diaz discloses that the motion estimation engine 86 determines motion vectors between the incoming macroblock and the prediction macroblock and stores the determined motion vectors in the memory 160 [c. 16 ll35-43]. Diaz discloses that the encoded bitstream is the output of the data MUX 120, which can be performed by the processor 75, and which is also the output of the encoder module 88 [c. 9 ll. 30-33]; and that when the decoder 200 is coupled to a processor 75, the processor controls the encoder module 88 (*"perform a function on the data, and return a result to the processor"*) [c. 9 ll. 34-36].

5.   Claims 7, 10, 11, 13 and 14 are similar in scope to claims 1, 2, 3, 5, and 6, and are rejected under the same rationale.

6.   As per claims 8 and 9, Diaz discloses that a DMA engine 162 in the decoder that controls all of the interfaces with the memory 160 [col. 11 lines 52-53].

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9.   **Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.**

Patent No. 5,920,353 to Diaz et al and U.S. Patent No. 5,790,208 to Kwak et al.

10.   As per claims 4 and 12, Diaz does not expressly teach calculating a "mean absolute

difference function". Kwak teaches an apparatus for estimating frame-to-frame motions between

two frames comprising a motion estimation unit 4 for calculating a mean absolute difference

[Abstract]. It would have been obvious to one of ordinary skill in the art at the time the

invention was made to have combined the teachings of Diaz and Kwak such that the motion

estimation engine of Diaz' invention is implemented to calculate the mean absolute difference as

taught by Kwak for the purpose of easy implementation and good estimation performance.

Response to Arguments

11.   Applicant's arguments filed 10/10/03 have been fully considered but they are not

persuasive. Applicant argues that Diaz fails to teach an instruction to the processor 75 causes

either motion estimation engine 86 or IDCT 66 to perform a function and return a result to the

processor. Claim 1 recites a processor for executing software instructions for processing images

and video, wherein some of the instructions initiate function performed by one or more of said

hardware accelerators where the result is returned to the processor. Diaz discloses that when the

decoder 200 is coupled to a processor 75, the processor controls the encoder module 88 [c. 9 ll.

34-36]; that processor 75 allows some of the functional blocks of the decoder 200' to be

performed in software in the processor 75 to either completely replace some or part of some of

the functional blocks, or to allow the function to be performed in either hardware or software [c.

13 ll. 38-42 and c. 8 ll. 5-15]; and that processor 75 functions to output the encoded bitstream

which is the output of the encoder module 88 [c. 9 ll. 30-33]. Therefore Diaz does teach this

limitation.

Conclusion

12.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

13.   A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

14.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to **Ulka Chauhan** whose telephone number is **(703) 305-9651**. The

examiner can normally be reached Mon.-Fri. from 9:00 am to 4:00 pm. If attempts to reach the

examiner by telephone are unsuccessful, the examiner's supervisor, **Matthew Bella**, can be

reached at **(703) 308-6829**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA, Sixth Floor (Receptionist).

15.   Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the Technology Center 2600 Customer Service Office whose telephone

number is (703) 305-4700.

Ulka J. Chauhan
Primary Examiner
Art Unit 2676

ujc
December 16, 2003